composition;

(ii) coating a layer of a liquid, photosensitive underclad composition onto the substrate; then deoxygenating the underclad layer under the conditions of vacuum, purging with inert gas, or a combination of vacuum and purging with inert gas; overall exposing the deoxygenated underclad composition to sufficient actinic radiation to only partially polymerize the underclad composition to a level below a substantially full curing of the underclad composition;

(iii) coating a layer of a liquid, photosensitive buffer composition onto the substrate; then deoxygenating the buffer layer under the conditions of vacuum, purging with inert gas, or a combination of vacuum and purging with inert gas; overall exposing the deoxygenated buffer composition to sufficient actinic radiation to only partially polymerize the buffer composition to a level below a substantially full curing of the buffer composition; followed by coating a layer of a liquid, photosensitive underclad composition onto the buffer layer; then deoxygenating the underclad layer under the conditions of vacuum, purging with inert gas, or a combination of vacuum and purging with inert gas; overall exposing the deoxygenated underclad composition to sufficient actinic radiation to only partially polymerize the underclad composition to a level below a substantially full curing of the clad composition; and

A1 CONT.

c) coating a layer of a liquid, photosensitive core composition onto a surface of the buffer layer or the clad layer; then deoxygenating the core layer under the conditions of vacuum, purging with inert gas, or a combination of vacuum and purging with inert gas and then covering the core layer with an inert gas atmosphere;

d) positioning a photomask having a waveguide pattern, at a level above, substantially parallel to, and not in contact with the core layer, and then imagewise exposing the photosensitive core composition through said photomask, to sufficient actinic radiation to only partially polymerize the

core composition to a level below a substantially full curing of the core composition but beyond the gel point of the core composition, while maintaining the core coated substrate in an inert gas atmosphere;

e) developing the exposed core composition layer to remove the non-image areas while not removing the image areas;

f) coating a layer of a liquid, photosensitive overclad composition over at least the image areas of the core composition; then deoxygenating the overclad layer and all underlying layers under conditions of vacuum, purging with inert gas, or a combination of vacuum and purging with inert gas; overall exposing the overclad composition, under an inert gas atmosphere, to sufficient actinic radiation to substantially fully cure, the buffer composition layer if present, the clad composition layer if present, the core composition layer and the overclad composition layer.

A1 CONT

29. (Amended) A polymeric waveguide formed by the process of claim 1, wherein the polymeric buffer layer, or polymeric underclad layer or both the polymeric buffer layer and a polymeric underclad layer have a pattern which are along and symmetrical with the core.

A2

Please add the following new claims:

31. (New) The process of claim 1 wherein said partial polymerization steps are conducted such that at least 10% of each of said photosensitive compositions remains unreacted following exposure to actinic radiation.

A3

32. (New) The process of claim 1 wherein said partial polymerization steps are conducted such that at least 25% of each of said photosensitive compositions remains unreacted following exposure to actinic radiation.

REMARKS

The examiner has rejected claims 1-28 under 35 U.S.C. 102 (e) over Xu et al. (U.S. patent